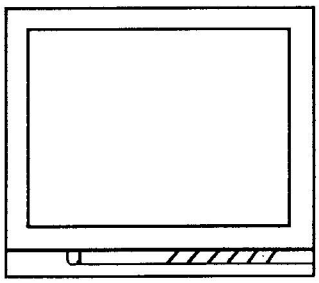
COLOR TELEVISION
CHASSIS PC 020

SERVICE MANUAL

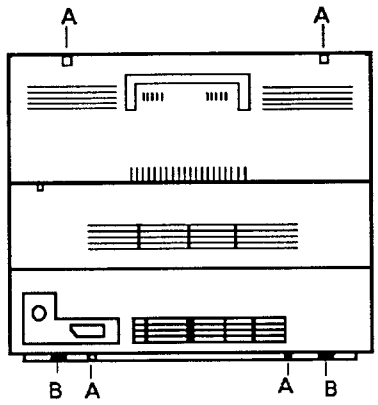


GENERAL FEATURES

CHASSIS	- Series PC020 "cold' modular type electrically separated from mains
PICTURE TUBE	- 14" 29.1 mm Neck Diam.
POWER SUPPLY	- 220V +/- 10%, 50/60Hz, 52Watt
MUSIC POWER	- 2 Watt
LOUDSPEAKER	- 16 Ohm
EHT	- 20.7KV
MAX BEAM CURRENT	- 600 µA
ANTENNA INPUT	- 75 Ohm DIN 45325-2
TUNER	- Varicap type
TUNING SYSTEM	- Electronic voltage synthesis type with On-Screen-Display
PROGRAM PRESELECTION	- 30 storable programs
EXTERNAL IN/OUTPUT	- Peritelevision (SCART) connection type EN 50049
RECEPTION STANDARD	- C.C.I.R. PAL B-G

ACCESS TO INTERNAL COMPONENTS

To remove the back panel:
-Unscrew screws **A**.
-Introduce a blade type screwdriver into **B** slots and press.
-Pull the bottom part of the back panel and remove it.



SAFETY NOTE

-Do not accidentally touch that part of chassis supply not electrically separated from mains.
-Do not install, remove, or handle the picture tube unless shatter-proof goggles are warn and install, remove or handle only after having kept away people not so equipped
-Before returning a serviced receiver to the customer, the service technician must thoroughly test the unit to be certain that it is completely safe to operate without danger of electrical shock, and be sure that no protective device built into the instrument by the manufacturer has become defective or inadvertently defected during servicing.
Therefore following checks are recommended:

-**Insulation.** Resistance should not be less than 2M Ohm at 500 V DC between the mains poles and any accessible metal parts.
-**High voltage.** High voltage should not be kept at rated value indicated on the receiver's back panel, no higher. Operating at higher voltage may cause failure of the picture tube or of high voltage supply.

Furthermore, in no case whatsoever must the electrical circuit providing the EHT be altered so as to prevent wrong voltage values from causing ionizating radiations above those allowed by International Standards.

MAIN COMPONENTS

PC 020 - Multifunctional chassis including following functional units:

a) IF amplifier, AFC, horizontal and vertical oscillator, syncro separator (TDA8349A-TDA8215A)
b) Vertical deflection (TDA8215A)
c) Horizontal deflection (TDA8215A - T301)
d) Switch - mode power supply (TEA2261 - T401)
e) 5V and 12,6V switching circuit (TDA8139)
f) Audio output circuit (TDA 8191)
g) Luminance and chrominance circuit (TDA 3301/B)
h) Tuning circuit (TEMA-03-04)

PCBs plugged on chassis

F2077 - RF Tuner with CATV channels (38,9 Mhz video IF; 33,4 Mhz audio IF)
I VHF Band: from ch E2 to ch S1 (48.25 - 105.25 MHz)
III VHF Band: from ch S2 to ch S20 (112.25 - 294.25 MHz)
UHF Band: from ch E21 to E69 (471.25 - 855.25 MHz)

PC 016 - Teletext decoder

PCBs off chassis

PC 021 - CRT p.c.b. with video output stages

ICs used and relevant functions

Schematic ref.	Type	P.c.B.	Electronic Functions
CI 1	TEMA03/04	PC 020	Tuning Microcomputer with On-screen Display.
CI 101	TBA 3301	PC 020	PAL decoder
CI 401	TEA 2261	PC 020	Switch-mode oscillator and control
CI 201	TDA 8349A	PC 020	IF amplifier, AGC, muting, video demodulator and aplifier, AFC and video switch
CI 601	TDA 8215A	PC 020	Synchro separator, vert. & orizz. oscillator and vertical output amplifier
CI 701	TDA 8191	PC 020	Audio amplifier
CI 1	CF 72306	PC 016	Teletext video processor
CI 2	CF 70095	PC 016	Teletext character generator

Transistors used and relevant functions

Schematic Ref.	Type	P.c.b.	Electronic functions
T 1	BC 558/B	PC 020	Band IV-V switching
T 2	BC 558/B	PC 020	Band III switching
T 3	BC 558/B	PC 020	Band I switching
T 5	BC 548/B	PC 020	Volume control amplifier
T 6	BC 548/B	PC 020	Fast blanking driver
T 7	BC 548/B	PC 020	Red character driver
T 8	BC 558/B	PC 020	Green character driver
T 9	BC 548/B	PC 020	Blue character driver
T 14	BF 240	PC 020	Tuning voltage amplifier
T 101	BC 548/B	PC 020	Vertical blanking shaper
T 201	BC558/B	PC 020	Emitter follower
T 202	BC548/B	PC 020	Emitter follower
T 102	BC 558/B	PC 020	Vertical blanking shaper
T 305	BU 508D	PC 020	Horizontal output amplifier
T 401	SGSF313	PC 020	Switch-mode transistor switch
T 701	BC 548/B	PC 020	Audio muting
T 501	BF 422	PC 021	Red output amplifier
T 502	BF 493S	PC 021	Red beam current measurement
T 503	BF 422	PC 021	Green output amplifier
T 504	BF 493S	PC 021	Green beam current measurement
T 505	BF 422	PC 021	Blue output amplifier
T 506	BF 493S	PC 021	Blue beam current measurement
T 1	BC548/B	PC 016	Emitter follower
T 2	BC639	PC 016	5V switch
T 3	BC548/B	PC 016	5V switch
T 4	BC548/B	PC 016	Teletext blue emitter follower
T 5	BC548/B	PC 016	Teletext green emitter follower
T 6	BC548/B	PC 016	Teletext red emitter follower
T 7	BC548/B	PC 016	Teletext blanking emitter follower

SPARE PARTS LIST

MODELS:

A	**CTV3715**
B	**CTV3717**

Assy	*Code No.*	*Description*	*PK*	*A*	*B*
PC020	805109000	MAIN CHASSIS	8M	•	•
PC016	804689300	TELETEXT DECODER	7B	•	•
	882229000	TUNER	6G	•	•
PC021	931800293	CRT MODULE	5N	•	•
	712152000	14" 90° PICTURE TUBE	8F	•	•
S1MF	792429000	REMOTE CONTROL	6E	•	•
	804341000	DEGAUSSING COIL	4G	•	•
	732094000	16 OHM LOUDSPEAKER	4F	•	•
	930702260	MAINS CABLE	3F	•	•
	752012000	BATTERY 1.5V (2 PIECES)	2M	•	•
	468990000	OWNER'S MANUAL	2F	•	•

REF.	CODE NO.	DESCRIPTION	PK
		805109000 PC020 MAIN CHASSIS	
01	682598100	CRT SOCKET	3M
02	792295100	INFRARED RECEIVER	4B
03	672115000	KEYBOARD	3V
C10-12-602	930071334	CCM.100P J 50V SL	1E
C101-410-701	930070828	CEN'1U0 M 100V	1E
C104-105	930071288	CCM.47P J 50V N750	1E
C106-112-206-422-430	930071451	CEN'100U M 25V	1G
C108-623-709	512174000	CEN'10U M 35V	1F
C11	930073468	CEN'10U M 63V	1G
C111-211	930074052	CFN'470N K 63V	1T
C113-126-411-702-710	930073161	CEN'1U0 M 100V	1F
C119	930072241	CFN'4N7 K 63V	1G
C119/A-125-803-207/A	930071816	CCM.1N0 K 50V 2B4	1E
C 121-431-612-711	930074048	CFN'220N K 63V	1M
C122-412-415	930070720	CCM.470P K 50V 2B4	1C
C123-715	930071636	CCM.10N N 25V 2C4	1E
C124-603	930073251	CCN'1N0 K 50V 2B4	1D
C127	930072198	CCM.56P J 50V N750	1F
C128-501-505-508	522457000	CCN'82P J 50V N150	1E
C129	930073821	CCM.18P J 50V NP0	1C
C13-14-215-425-621-707	930073747	CEN'100U M 25V	1G
C208	930073601	CEN'22U M 35V	1G
C209-414	930073972	CEN'2U2 M 63V	1T
C216	532399000	CFN'10N J 63V	1H
C3-617-717	930073631	CEN'47U M 35V	1K
C301	512244000	CEN'470U M 16V	1R
C302	532365000	CTS 6N2 J 2KV P225	2L
C303	532441000	CPM 390N K 250V P15	2N
C307	930073506	CMM 100N K 250V P10	1P
C308	512190000	CRA 10U M 250V105Õ	2C
C310	930073165	CEN'22U M 35V	1F
C4-107-109-202-203-204-207-214	930071638	CCM.22N N 16V Y	1F
C401	532447000	CFS 330N M 250V CA	2S
C402	930073653	CMM 47N K 630V P15	1N
C403	522648000	CCS 4N7 M 400/4KV	2V
C405-406	930074038	CCN'1N0 M 1KV 2B4	1F

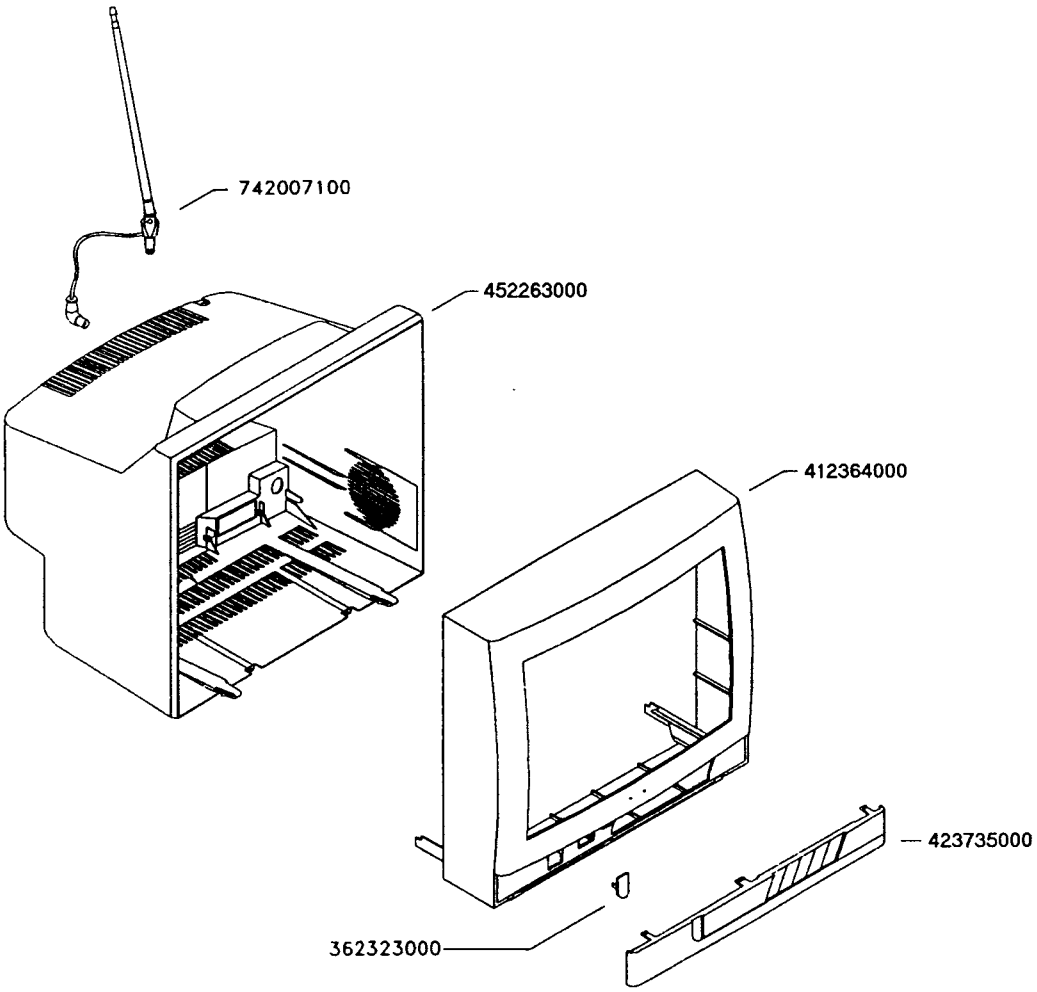
REF.	CODE NO.	DESCRIPTION	PK
C408	512291000	CEF 68U M 385V D22	4C
C410/A	930072431	CFN'2N2 K 63V	1H
C413	512278000	CEN'220U M 25V	1L
C416	512184000	CEN'47U M 25V	1F
C417	532433000	CTS 1N0 J 1KV5 P15	1Z
C419	930070834	CRA 100U M 250V105Õ	3K
C421-616	930073768	CRB 470U M 35V	2B
C5-114-115-116-117-120-201-205-213-424 426-428-432-614-615-620-716	532276000	CFN'100N K 63V	1H
C504	930072109	CEN'2U2 M 250V	1P
C511	522625000	CAT 2N2 M 2KV	1M
C6-7-8-9-110-210	930073603	CCM.15P J 50V NP0	1E
C601	532371000	CFN'470NF J 63V	1U
C604	532374000	CPN'2N7 H 63V	1T
C605	532291000	CFN'12N K 63V	1G
C606	930073163	CEN'2U2 M 63V	1E
C607	532289000	CFN'8N2 K 63V	1G
C608	930072299	CFN'22N K 63V	1G
C609	930073719	CMM 15N K 400V P10	1N
C610 C118-130-131-212-217	930074042	CFN'47N K 63V	1F
C610/A	522544000	CCM.10P J 50V NP0	1E
C613-713	512263000	CRB 1000U M 25V H MAX20	2F
C619	532382000	CFN'150N J 63V	1N
C622	930073167	CEN'4U7 M 63V	1F
C703	532274000	CFN'68N K 63V	1H
C704	930073821	CCN'18P J 50V NP0	1C
C705-706-714	930074022	CCN'47N Z 50V 2F4	1F
C708	930073062	CCN'8P2 D 50V NP0	1C
C712	930072506	CRB 470U M 25V	1T
CH1	612654000	BNS-56UH K SUB.	1Q
CH101-102	612524000	BNA-15 UH J	1P
CH103-701-702 CH803	930071276	BNA-10 UH K	1N
CH2-3	612566000	BNA-100 UH J IR=270MA	1Q
CH201	612635000	BNS-1UH K SUB.	1P
CH202	612653000	BNS-6,8UH K SUB.	1Q
CH302-401	930070854	BNA-4,7 UH K	1N
CH402	930072465	BNU 23.5D050F4,1 TA593/A	1M
CH403-404	930071361	BCH 47 UH K 800MA	2B
CI.-1	931590045	I.C. ST6356B1/B (TEMA03)	5D

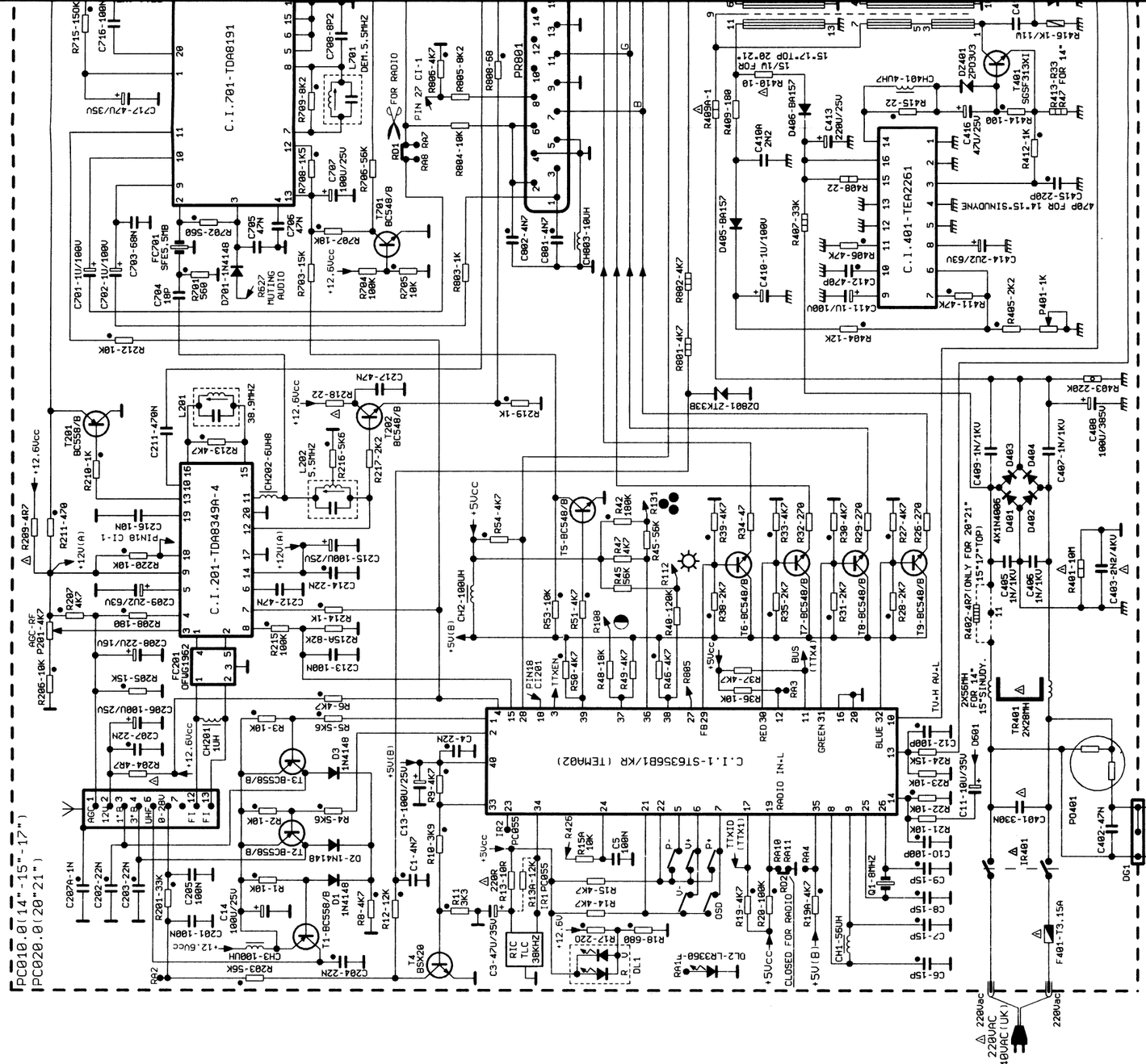
REF.	CODE NO.	DESCRIPTION	PK
CI.-1	931590054	I.C. ST6356B1/B (TEMA04)	5D
CI.-101	592434000	I.C. TDA3301/B	4M
CI.-201	592742000	I.C. TDA8349A-4	4Q
CI.-401	592679000	I.C. TEA2261	4B
CI.-402	592646000	I.C. TDA8139	3S
CI.-601	592802000	I.C. TDA8215B(W)	4D
CI.-701	592565000	I.C. TDA8191	4C
D-1-2-3-101-102-501-502-503-602-603-701-702	930074457	DSC-1N4148	1B
D-103-601	930074793	DSR-1N4001 IFSM 50A	1D
D-304-407	583029000	DSC-BA159 VR1000 IF1/9A	1G
D-303 D-401-402-403-404	930070990	DSR-1N4007 IFSM 50A	1D
D-405-406	930074085	DSC-BA157 VR400 IF1/9A	1F
D-408	582179000	DRV-BYV95C VR600 I1,5/35A	1R
D-409	582186000	DRV BYW95C VR600 IF3/70A	2F
DL-1	582221000	GREEN/RED LED	2G
DZ-401	930070972	DZE-ZPD3V3	1D
DZ-801	930075070	CI -ZTK33B (32-34V)	2H
F-401	930076759	FUSE 3,15A T 250V 5X20	1L
F-401	930076491	FUSE HOLDER	1H
FC201	792264000	OFWG1962	4K
FC701	930702202	5,5 M. SFT/MA	3H
IR-401	672094000	MAINS SWITCH 4A/64/250 2P2V	3T
L-105	612670000	BSE 7X7 4,43MHZ	2L
L-201	612668000	BSE 7X7 38,9MHZ	2M
L-202	612672000	5,5MHZ TRAP	2L
L-302	612567000	BAM 350 UH 7%	4B
L-701	612671000	BSE 10X10 5,57MHZ	2L
LR-101	792256000	0,33US+TRAP Z=1K	3S
LR-102	792185000	64US DELAY LINE	3U
P-101-401	930072519	POA 1K0 M 0,1W	1M
P-201	552167000	POA 4K7 M 0,1W	1M
P-501-502	930072547	POA 2K2 M 0,1W	1M
P-601	930072531	POA 10K M 0,1W	1L
P-602	552132000	PTV 470R M 0,1W	1M
P-603	930072357	PTV 100R M 0,1W	1M
P-604	552214000	PTV 100K M 0,1W	1M
PO-401	543761000	PTC 270VRMS I10 ECON.	3Q
PR-801	930702205	PERITEL.EN50049	2N
Q-1	792297000	QUARTZ. 8MHZ HC49/U (20PF)	3B
Q-101	792195000	QUARTZ.4433,619KHZHC49U P5	3B
R-13-410	543061000	RFU-10R J 0,3W	1K

REF.	CODE NO.	DESCRIPTION	PK
R-204-209	930070342	RFU-4R7 J 0,3W	1H
R-218	543668000	RFU-22R J 0,3W	1H
R-303	543126000	RFP 2K2 J 1W	2A
R-308	543111000	RFU-R22 K 0,4W	1M
R-311	543626000	RPM 4R7 J 4W	2R
R-401	930071086	RAI 10M J 1W	2A
R-402	543915000	RFA 4R7 K 4W	2L
R-405	542993000	RCM.2K2 J 1/4W	1B
R-407	543983000	RPM 33K J 2W	1H
R-409A	930070094	RFU 1R0 J 1W	1P
R-413	544137000	RFA-R47 J 2W	1Z
R-416	541178000	RPV 1K0 J 9W	2L
R-418	930070224	RPM 56K J 2W	1H
R-419	930071022	RPM 470R J 2W	1G
R-421	930070095	RSM-10K G 0,4W	1C
R-425	543988000	ROP 150R J 4W	1V
R-524	542918000	RFU-R33 K 0,4W	1M
R-609	544085000	RSC 120R J 1W	1E
R-611	543992000	RPV 100R J 4W	2B
R-711	930070013	RFU-2R2 J 0,4W	1P
R-802	543906000	RPM 4K7 J 2W	1H
R-801 R-810 R-310	930070109	RFU-4R7 J 0,5W	1N
T-1-2-3- 102-201	930071230	TRN'BC558B PNP CO	1D
T-301	572288100	TR BU808DFI(N) NPN	4E
T-4	572260000	TR BSX20 NPN	2D
T-401	572318000	TR SGSF313-XI PNP	3H
T-5-101- 701	930071228	TRN'BC548B NPN CO	1D
T-501- 503-505	572217000	TRN'BF422 NPN EM	1M
T-502- 504-506	930070852	TRN'BF493S PNP CO	1P
T-6-7-8- 9-202-603	930071228	TRN'BC548B NPN EM	1D
T-602	930071230	TRN'BC558B PNP EM	1D
TR-301	632085000	EHT TRANSFORMER	5R
TR-301	692051000	EHT CABLE	3Z
TR-401	612648000	BFR 2X28MH +/-30%TOROID.	3Z
TR-402	622117000	SWITCH-MODE TRANSFORMER	5C

REF.	CODE NO.	DESCRIPTION	PK
		804689300 PC016 TELETEXT DECODER	
C-20	930073161	CEN'1U0 M 100V	1F
C-23	930071451	CEN'100U M 25V	1G
C-24	512175000	CEN'220U M 16V	1L
C-5	930073468	CEN'10U M 63V	1G
C-6	930073747	CEN'100U M 25V	1G
CI.-1	592732000	I.C. CF72306	3P
CI.-2	592756000	I.C. CF70095	5L
CI.-3	592483000	I.C. 74HC4066 MOS	2L
D-2	582232000	DVA-BB911/A	1R
D-3	582254000	DCC=BAS16 A6	1E
L1	612698000	BSE 36,5M 7X7 DSG-3040	2N
Q-1	792188000	QUARTZ 13,875MHZ HC49 T=5	3C
R-1	542366000	RFU-6R8 J 0,3W	1K
T-1-3-4-5-6-7	572282000	TNC=BC848B NPN 1K	1E
T-2	572225000	TRN'BC369 EM	2B
T-8-9	572294000	TNC=BC858B PNP 3K	1E

CODE NO.	PK
362323000	1N
412364000	5K
423735000	4E
452263000	5C
742007100	4Q




PC010.0(14"-15"-17")
PC020.0(20"21")
C.I.201-TDA8349A-4
C.I.701-TDA8191
C.I.401-TEA2261
C.I.1-ST6356B1/KR (TEMA02)
FC201 OFWG1962
TUNER
AGC
UHF
VHF
0-20V
FI
RADIO IN+L
RED 30
GREEN 31
BLUE 32
TU+H AU-L
TTXEN
TTXID (TTX1)
BUS (TTX4)
OSD
RADIO RD2
CLOSED FOR RADIO
PIN18 CI201
PIN 27 CI-1
FOR RADIO
DEGAUSSING
220VAC 240VAC(UK)
220VAC
F401-T3.15A
PC010.0
60.3071.009
PC011.0
TDK

C.I.701-TDA8191

C.I.101-TDA3301/B

C.I.601-TDA8215B(W)

C.I.402-TDA8139

TEA2261

PR801

FOR SECAM JUMPER WIRE S1-S2-S3-S4-S5-CH103

L102 ONLY FOR SECAM

ONLY FOR 20"21"15"17"TOP

ONLY FOR 15"17"TOP

ONLY FOR 14"

ONLY FOR 15"SINUDY.

FOR RADIO

FOR TTXT

FOCUS

G2

+105Vcc FOR 14" 15"SINUDYNE

+118Vcc

+15Vcc

+12,6Vcc

+5Vcc

+27V

+60VPP

145V 195V FOR 20"21"15"17"TOP

A-A 14"-15"SINUDY.=22,5KV+/-0,5
EHT 15"17"TOP=24KV+/-0,5
20"21"=25,5KV +/-0,5

5,5KV÷9KV

100V÷1KV

6,3V

TELETEXT

MUTING AUDIO D701

SANDCASTLE R128

SAND CASTLE R621

BEAM LIM C310

BEAM LIM D101

TRAPP.4,43MHz

Q101 4,43MHz

LR101-330NS

LR102 64US

AMP

INPUT AUDIO

INPUT VIDEO

SW401

TU

TF

TT1

AL1

AL2

CN501

GD-H

TRC1 20"-21"

TRC1 14"-15" 17"

PC811.8(14"-15"-17")
PC821.0(20"21")

PC021.0

DIFFERENZ
TIPI DI
VARIAZIONI B

RIF. SCHEMA	14"	15"SINUDY.	15"17"TO
PC	PC010/011	PC010/011	PC010/0
PR1	——	——	——
PR701	——	——	PR701
R103	1K5	1K	1K5
R137	330	330	330
R138	820	820	820
L301	——	L301	L301
L302	——	JUMP WIRE	L302
R303	JUMP WIRE	2K2/1W	2K2/1W
R304	10K/4W	10K/4W	6K8/4W
R306	150K	150K	150K
C302	6N8/2KV	6N2/2KV	7N5/2KV
C303	330N	330N	330N
TR401	2X56MH	2X56MH	2X28MH
R402	JUMP WIRE	JUMP WIRE	4R7/4W
R410	10R	10R	15R/1W
R413	R47/2W	R33/2W	R33/2W
R502	10K/1W	10K/1W	8K2/4W
R505	560R	560R	390R
R509	10K/1W	10K/1W	8K2/4W
R511	3K3	3K3	2K2
R513	560R	560R	390R
R516	180K	180K	220K
R517	10K/1W	10K/1W	8K2/4W
R518	3K3	3K3	2K2
R520	560R	560R	390R
R522	180K	180K	180K
R523	1R/2W	1R/2W	2R2/2W
C411	220N	220N	330N
R524A	——	——	——
C415	470P	470P	220P
C502	220P	220P	330P
C504	2U2/250V	2U2/250V	10U/350
C506	220P	220P	330P
C509	220P	220P	330P
T501	BF422	BF422	BF758
T503	BF422	BF422	BF758
T505	BF422	BF422	BF758
R614	1/0,7W	1/0,7W	1/0,7W
R615	180K	180K	220K
R616	270K	270K	220K
R625	3M9/2%	3M9/2%	4M3/2%
C609	15N	10N	10N
C612	220N	150N	150N
C613	1000U/25V	1000U/25V	2200U/2
R713	——	——	150R 1/
C718	——	4N7	4N7
C718/A	——	——	——
CH701	10UH	10UH	10UH
CH702	10UH	10UH	10UH
C803	——	1N	1N
CH801	——	——	10UH

Colour TV receiver
Farbfernsehgerät
Téléviseur couleur
Televisore a colori
«TEMA»

PC 010 - 020 - 90°

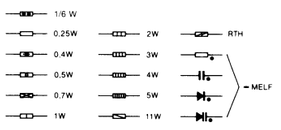
PC 012-PC 016-BS 843-BS 854-BS 858-BS 863

The manufacturers reserve all legal rights with regard to the ownership of this document and hereby prohibit reproduction or distribution of the same without their prior permission.
Moreover, they decline all responsibility for eventual errors, whether due to misprints or incorrect transcription, and reserve the right to make any necessary or useful changes without jeopardizing the essential characteristics.
All resistors without markings are 1/4 W - 5%. All measurements refer to ground with mains supply 220V (240V UK) correct picture and a voltmeter of 20.000 Ohm/V.

Die Herstellerfirma behält sich alle gesetzlichen Eigentumsrechte dieser Unterlage vor, der Nachdruck und die Verbreitung bedarf der ausdrücklichen Genehmigung durch dieselbe.
Ferner wird jegliche Verantwortung für eventuelle Ungenauigkeiten der vorliegenden Unterlage, durch Fehler beim Druck oder bei der Übertragung des Textes, abgelehnt. Die Herstellerfirma behält sich weiter vor, Änderungen, die als notwendig oder zweckmässig angesehen werden, vorzunehmen ohne dass dabei die wesentlichen Eigenschaften des Teiles beeinträchtigt werden.
Alle Widerstände ohne Bezeichnung sind 1/4 W - 5%. Alle Messungen beziehen sich auf Masse, mit einer Netzspannung von 220 V (240 V UK) und normalem Fernsehsignal gemessen mit einem Voltmeter von 20.000 Ohm/V.

Le constructeur se réserve aux térmes de la loi, la proprieté de le document et l'interdiction de le réimprimer ou sa divulgation sans son permi.
Decline toute responsabilitè pour d'éventuelles inexactitudes (fautes d'impression ou de transcription), contenues dans ce document. Il se réserve en outre le droit d'apporter toutes les modifications qu'il estimerait necessaires ou utiles, sans porter préjudice au caracteristiques essentielles.
Toutes les résistances sans d'indication sont de 1/4 W - 5%. Toutes les mesures sont respect a la masse, avec tension secteur 220 V (240 V UK). Image corecte et avec un voltmètre de 20.000 Ohm/V.

La casa costruttrice si riserva ai termini di legge la proprietà del presente documento con divieto di riprodurlo o divulgarlo senza sua previa autorizzazione.
Inoltre declina ogni responsabilità per le possibili inesattezze contenute nel presente documento, se dovute ad errori di stampa o trascrizione. Si riserva il diritto di apportare quelle modifiche che ritenesse necessarie o utili, senza pregiudicarne le caratteristiche essenziali.
Tutte le resistenze prive d'indicazione s'intendono da 1/4 W - 5%. Tutte le misure s'intendono rispetto a massa con alimentazione rete 220 V (240 V UK). Immagine corretta e con un voltmetro da 20.000 Ohm/V.



In order to ensure the maximum safety and reliability, original spare parts should always be used when replacing components.
Particular care should be taken when replacing components marked with the symbol ⚠ .

Zur Gewährleistung von Sicherheit und Zuverlässigkeit dürfen nur Original-Ersatzteile verwendet werden.
Besondere Sorgfalt wird bei den Teilen, die mit dem Symbol ⚠ gekennzeichnet sind, verlangt.

Pour une plus grande sécurité et fiabilité, tous les composants doivent être remplacés par des pièces originales.
Il faut prêter une attention particulière à ceux portant le symbole ⚠ .

Ai fini della sicurezza ed affidabilità tutti i componenti devono essere sostituiti con pezzi originali.
Particolare attenzione va posta a quelli contrassegnati con il simbolo ⚠ .

MEASUREMENTS PERFORMED USING COLOUR BARS WITH 100% MODULATION

MESSUNGEN SIGNALTYP 100% MODULIERTES FARBBALKEN

LES MESURES SONT EFECTUEES AVEC SIGNAL: MIRE EN COULEUR MODULEE AU 100%

RILIEVI ESEGUITI CON SEGNALE: BARRE COLORE MODULATE AL 100%

MEASUREMENTS PERFORMED WITH
ERGEBNISSE AUS
MESURES EFECTUEES AVEC
RILIEVI ESEGUITI CON

MAX

BLACK BAR OFF
SCHWARZER BALKEN AUS
BARRE NOIRE ETEINTE
BARRA NERA SPENTA

COLOR MATRIX
FARBE MATRIX
MATRICE COULEUR
MATRICE COLORE

VOLUME MAX
LAUTSTARKE MAX
VOLUME MAX
VOLUME MAX

MOD. 100%-1KHZ

DIFFERENZE TRA TIPI DI TRC
VARIATIONS BETWEEN CRT

RIF. SCHEMA	14"	15"SINUDY.	15"17"TOP	20"VDC	21"-VDC	21"PH
PC	PC010/011	PC010/011	PC010/011	PC020/021	PC020/021	PC020/021
PR1	—	—	—	PR1	PR1	PR1
PR701	—	—	PR701	—	—	—
R103	1K5	1K	1K5	1K5	1K5	1K5
R137	330	330	330	270	270	270
R138	820	820	820	270	270	270
L301	—	L301	L301	L301	L301	L301
L302	—	JUMP WIRE	L302	L302	L302	L302
R303	JUMP WIRE	2K2/1W	2K2/1W	2K2/1W	2K2/1W	2K2/1W
R304	10K/4W	10K/4W	6K8/4W	6K8/4W	6K8/4W	6K8/4W
R306	150K	150K	150K	82K	82K	82K
C302	6N8/2KV	6N2/2KV	7N5/2KV	8N2/2KV	6N8/2KV	7N7/2KV
C303	330N	330N	330N	470N	330N	330N
TR401	2X56MH	2X56MH	2X28MH	2X28MH	2X28MH	2X28MH
R402	JUMP WIRE	JUMP WIRE	4R7/4W	4R7/4W	4R7/4W	4R7/4W
R410	10R	10R	15R/1W	15R/1W	15R/1W	15R/1W
R413	R47/2W	R33/2W	R33/2W	R33/2W	R33/2W	R33/2W
R502	10K/1W	10K/1W	8K2/4W	8K2/4W	8K2/4W	8K2/4W
R505	560R	560R	390R	390R	390R	390R
R509	10K/1W	10K/1W	8K2/4W	8K2/4W	8K2/4W	8K2/4W
R511	3K3	3K3	2K2	2K2	2K2	2K2
R513	560R	560R	390R	390R	390R	390R
R516	180K	180K	220K	270K	270K	220K
R517	10K/1W	10K/1W	8K2/4W	8K2/4W	8K2/4W	8K2/4W
R518	3K3	3K3	2K2	2K2	2K2	2K2
R520	560R	560R	390R	390R	390R	390R
R522	180K	180K	180K	270K	270K	220K
R523	1R/2W	1R/2W	2R2/2W	R33/0.4W	R82/2W	2R2/2W
C411	220N	220N	330N	330N	330N	330N
R524A	—	—	—	330R/2W	330R/2W	330R/2W
C415	470P	470P	220P	220P	220P	220P
C502	220P	220P	330P	330P	330P	330P
C504	2U2/250V	2U2/250V	10U/350V	47U/250V	47U/250V	47U/250V
C506	220P	220P	330P	330P	330P	330P
C509	220P	220P	330P	330P	330P	330P
T501	BF422	BF422	BF758	BF758	BF758	BF758
T503	BF422	BF422	BF758	BF758	BF758	BF758
T505	BF422	BF422	BF758	BF758	BF758	BF758
R614	1/0,7W	1/0,7W	1/0,7W	1/0,7W	1/0,7W	R82/0,7W
R615	180K	180K	220K	180K	180K	220K
R616	270K	270K	220K	270K	220K	220K
R625	3M9/2%	3M9/2%	4M3/2%	4M3/2%	4M3/2%	4M3/2%
C609	15N	10N	10N	10N	10N	10N
C612	220N	150N	150N	150N	150N	150N
C613	1000U/25V	1000U/25V	2200U/25V	1000U/25V	1000U/25V	2200U/25V
R713	—	—	150R 1/2W	150R 1/2W	150R 1/2W	150R 1/2W
C718	—	4N7	4N7	—	—	—
C718/A	—	—	—	4N7	4N7	4N7
CH701	10UH	10UH	10UH	47UH	47UH	47UH
CH702	10UH	10UH	10UH	47UH	47UH	47UH
C803	—	1N	1N	—	—	—
CH801	—	—	10UH	—	—	—

ADJUSTMENT PROCEDURE
PC010 - PC 020 CHASSIS «TEMA»

Power Supply.
(Brightness and contrast to minimum; dark screen).
-Adjust P401 to 105V ± 1V on R418 for 14"; 118V ± 1V for 15", 17", top 20"-21".

Geometry.
(Monoscope or cross-hatch signal to the aerial - Brightness, contrast and colour in middle position).
- Short circuit on C602
- Adjust P601 to obtain minimum horizontal running picture.
- Disconnect the bridge short circuiting on C602.
- Adjust P604 for picture correct vertical centering.
- Adjust P602 to center the picture horizontally.
- Adjust L301 to obtain correct horizontal size (20" - 21").

Video and audio intermediate frequencies adjustment.
(Intermediate frequency video signal with video and audio modulation: 38.9 MHz PV - 33.4 MHz PA for BG standard; 39.5 MHz PV and 33.5 MHz PA for I standard with level of about 50 mV).
- Apply the signal in parallel to C213 with a balanced probe.
- Connect a voltmeter (5V - 10M Ω) across C213.
- Adjust, with a plastic screwdriver, L504 in order to obtain 2.5V. Verify that the voltage swing is from 1V to 5V.
- Connect the oscilloscope probe to pin 20 of scart plug.
- Adjust, with a plastic screwdriver, L202 to obtain minimun voltage at 5.5 MHz signal frequency.
- Connect a differenti al voltmeter (20K Ω/V) on pins 9 and 10 of CI5 (TDA 8191).
- Adjust, with a plastic screwdriver, L701 to obtain the same voltage on pins 9 and 10 (typical value 4.3V).
- Disconnect the signal across CH201.
- Connect a signal to aerial imput (800 µV on H1 - channel).
- Connect a voltmeter across C208.
- Adjust P201 to obtain 8.5 V.

Luminance - Crominance circuits adjustment.
(Colour test pattern with standard modulation).
- Connect oscilloscope probe (10:1) on collector T501 (blu final amplyfier stage).
- Use the remote control to set the colour amplitude to the schematic diagram (matric condition).
- Adjust P101 for the lowest signal amplitude in the area ANTI-PAL information. (Amplitude of direct signal).
- Adjust, with a plastic screwdriver, L501 to obtain the minimun difference in colour signal amplitude between tho consecutive lines.

G2 Adjustment.
(Use standard test pattern).
- Use the remote control unit to blank the last bar on the grey scale and set colour to minimun (B/W picture).
- Use the oscilloscope (probe 10:1), d.c. imput, to measure the black bar level on the three collectors of T501 - T503 - T505.
- Connect the probe of the oscilloscope to the collector which shows the hightest d.c. black level.
- Adjust with G2 potenziometer for 115V with 14", 15" and 17" picture tubes; 160V with 21" VIDEADOR picture tubes and 130V with 21" PHILIPS picture tubes.

Focus adjustment.
Use the focus potenziometer to obtain best focus on the area suggested by the manufacturer of picture tubes.

White adjustment.
(Before beginning adjustment, set potenziometer P501 - 502 to obtain the maximum video output level).
- Adjust P501 - 502 if coloration is noted on the grey scale.

OPERAZIONI DI TARATURA - NORME PRELIMINARI
TELAIO PC010 - PC 020 «TEMA»

Alimentazione.
(Luce e contrasto al minimo, schermo buio).
- Regolare P401 per 105V ± 1V su R418 per 14"; 118V ± 1V per 15", 17", top 20"-21".

Geometria.
(Segnale monoscopio e reticolo in antenna. Luce, contrasto, colore a metà regolazione).
- Cortocircuitare C602.
- Regolare P601 per il minor scorrimento dell'immagine in senso orizzontale.
- Disinserire il ponticello di cc. su C602.
- Regolare P604 per la corretta centratura dell'immagine in senso verticale.
- Regolare P602 per la centratura orizzontale dell'immagine.
- Regolare L301 per la corretta ampiezza orizzontale (20" - 21").

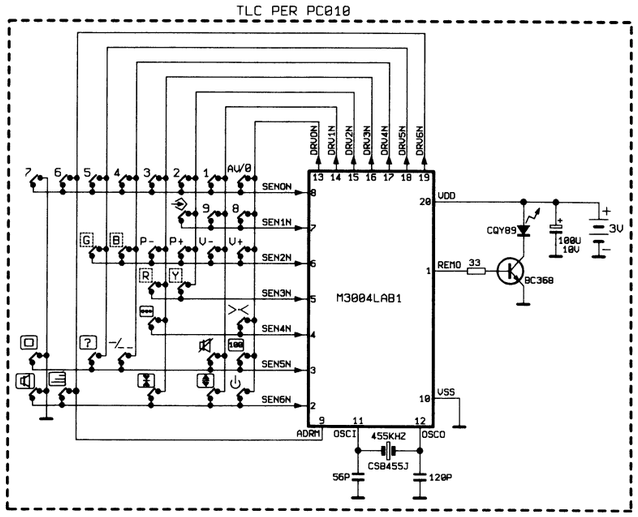
Frequenza intermedia video e audio.
(Segnale a media frequenza video con modulazione video e audio: 38,9 MHz PV - 33,4 MHz PA per lo standard BG; oppure 39,5 MHz PV e 33,5 MHz PA per lo standard I con livello di ca. 50 mV).
- Collegare il segnale con sonda bilanciata in parallelo a CH201.
- Collegare un voltmetro elettronico (5V F/s - 10M Ω) ai capi di C213.
- Con cacciavite di plastica tarare L504 per una tensione di 2,5V nel tratto di variazione da 1 + 5V.
- Collegare la sonda dell'oscilloscopio sul pin 20 della presa Scart.
- Con cacciavite in plastica tarare L202 per il minimo segnale a 5,5 MHz.
- Collegare un voltmetro differenziale (20 K Ω/V) sui piedini 9 e 10 di CI5 (TDA 8191).
- Con cacciavite in plastica tarare L701 per la stessa tensione sui due piedini (tipico 4,3V).
- Scollegare il segnale ai capi di CH201.
- Collegare un segnale in antenna di 800 µV sul canale H1 (11).
- Collegare un voltmetro ai capi di C208.
- Regolare P201 per 6,5V.

Luminanza - Crominanza.
(Monoscopio colore con modulazione standard).
- Collegare la sonda all'oscilloscopio (10:1) sul collettore di T501 (finale del blu).
- Regolare, con il telecomando l'ampiezza del segnale colore, per la condizione di matrice.
- Regolare P101 per la minor ampiezza del segnale in corrispondenza dell'informazione anti PAL. (Ampiezza del segnale diretto).
- Regolare con cacciavite di plastica L105 per la minor differenza di ampiezza del segnale colore di due righe consecutive in corrispondenza delle barre di colore (fase).

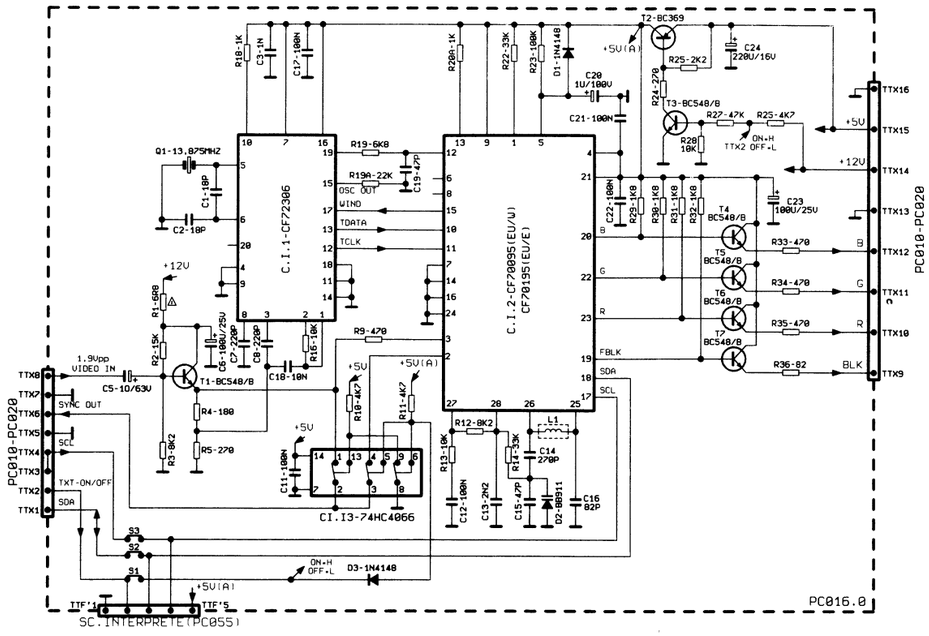
Regolazione G2.
(Segnale monoscopio).
- Con il telecomando interdire l'ultima barra della scala dei grigi e mettere al minimo il colore (immagine (B/N).
- Misurare con l'oscilloscopio (sonda 10:1) collegato in continua il livello della barra nera sui tre collettori di T501 - T503 - T505.
- Collegare la sonda dell'oscilloscopio sul collettore con livello del nero in continua più elevato.
- Tarare con il potenziometro della G2 per 115V con cinescopi 14", 15" e 17"; 160V con cinescopi da 21" VDC e 130V con cinescopi PHILIPS 21".

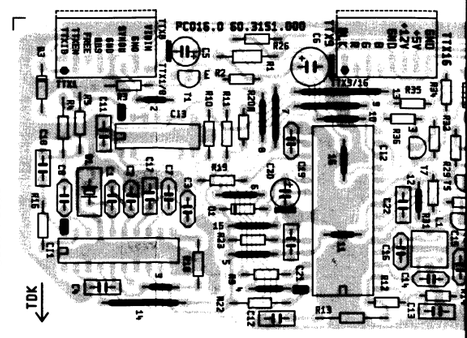
Taratura della focalizzazione.
- Effettuare la migliore focalizzazione mediante l'apposito potenziometro nella zona consigliata dal costruttore del cinescopio.

Taratura del bianco.
(Iniziare la taratura con potenziometro P501 - 502 per la massima uscita del segnale video).
- Tarare P501 - 502 se compaiono colorazioni predominanti sulla scala dei grigi.



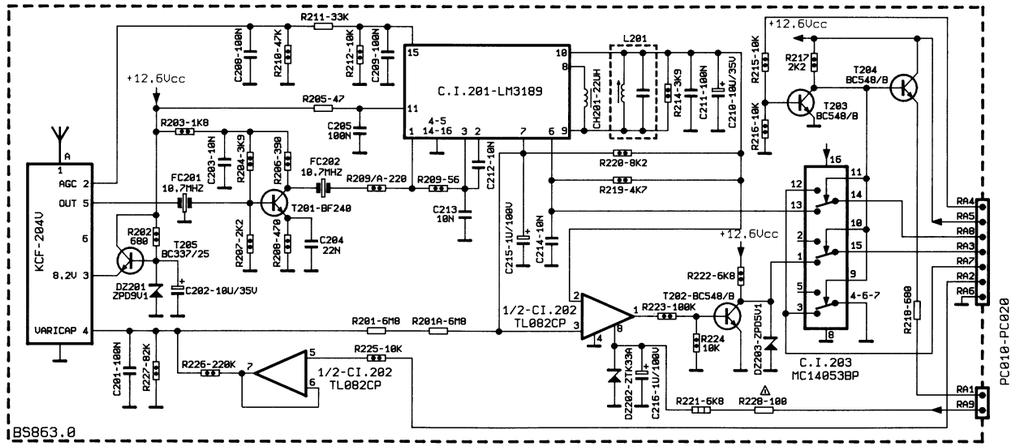
TTXT FLOF - 1 PAG. UNITEXT

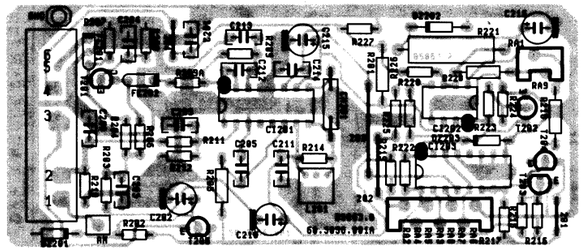




PC 016

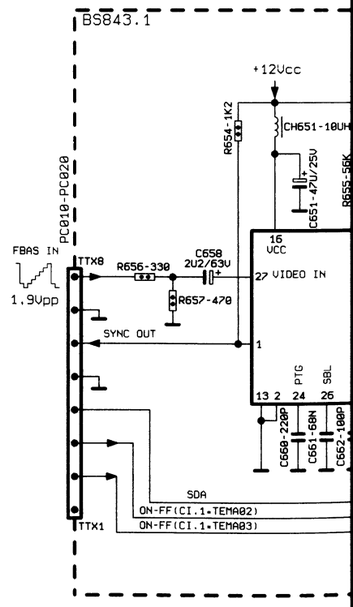
S.E.RADIO



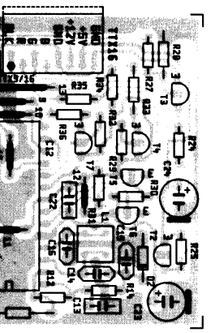


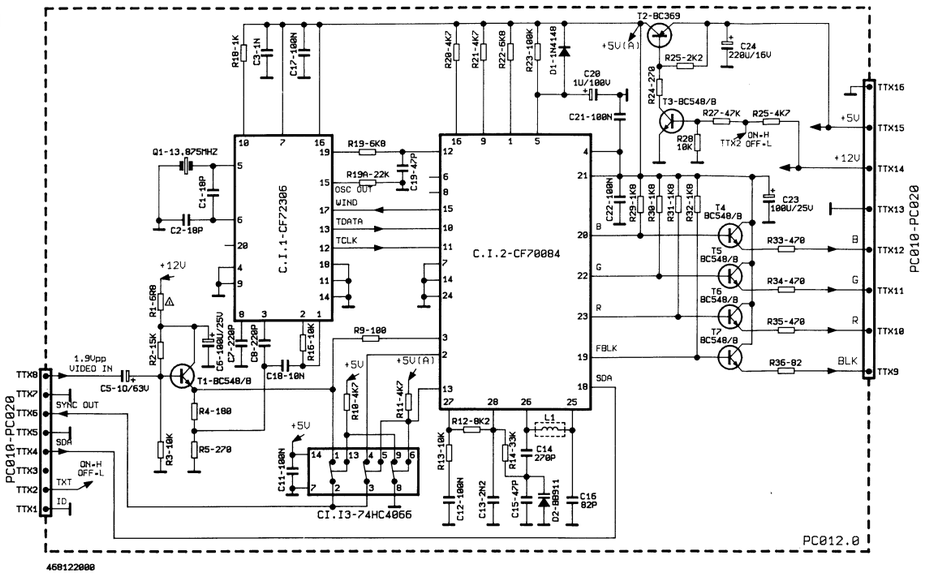
BS 863

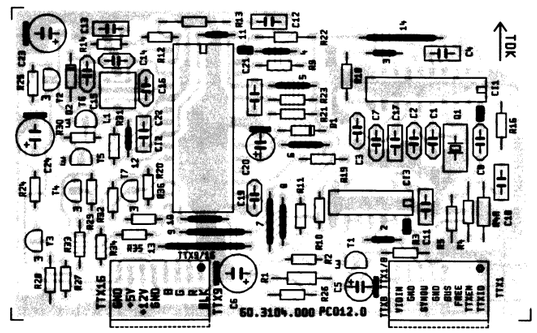
TELETEXT



TTXT FLOF-1 PAG.

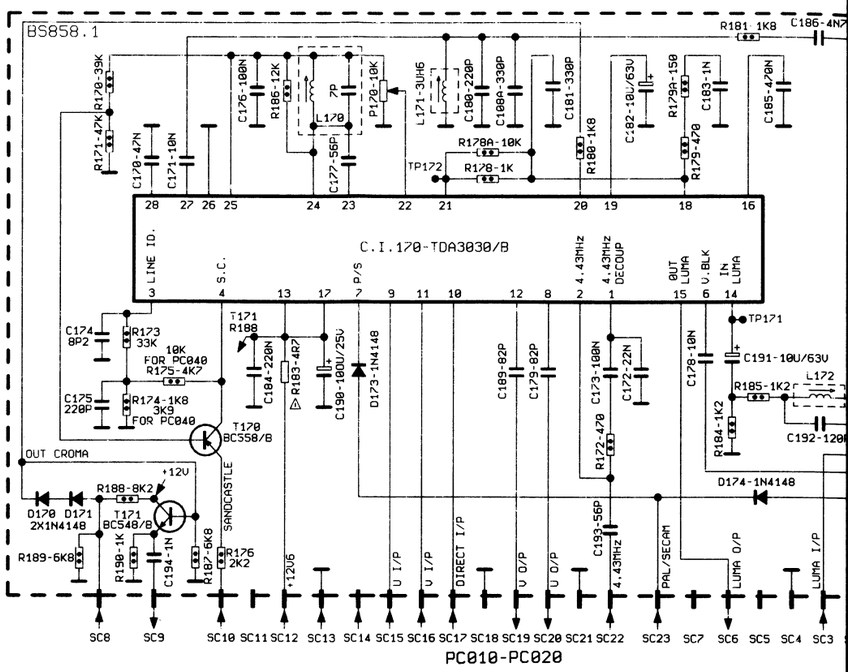




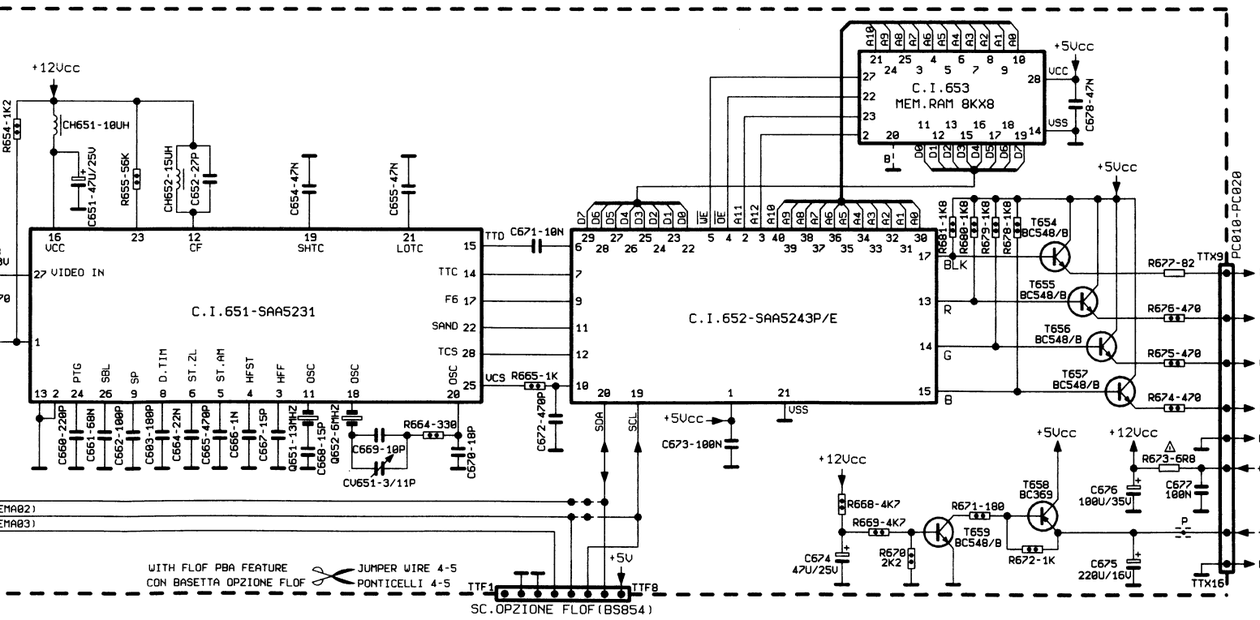


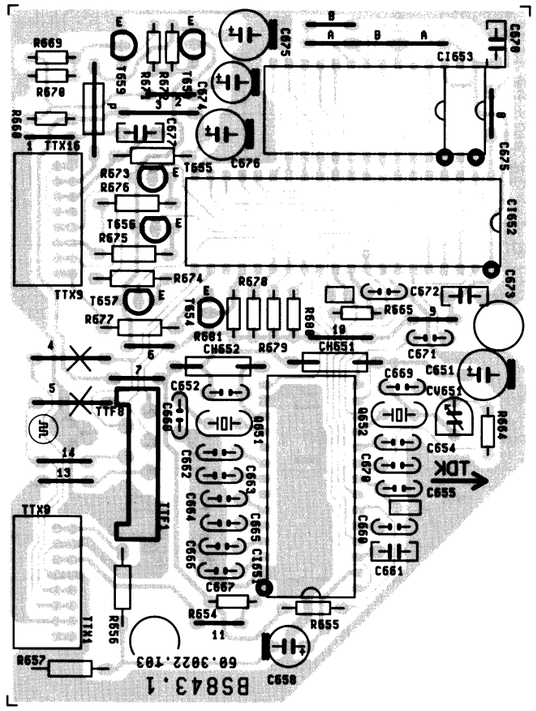
PC 012

TRANSCODER PAL-SECAM

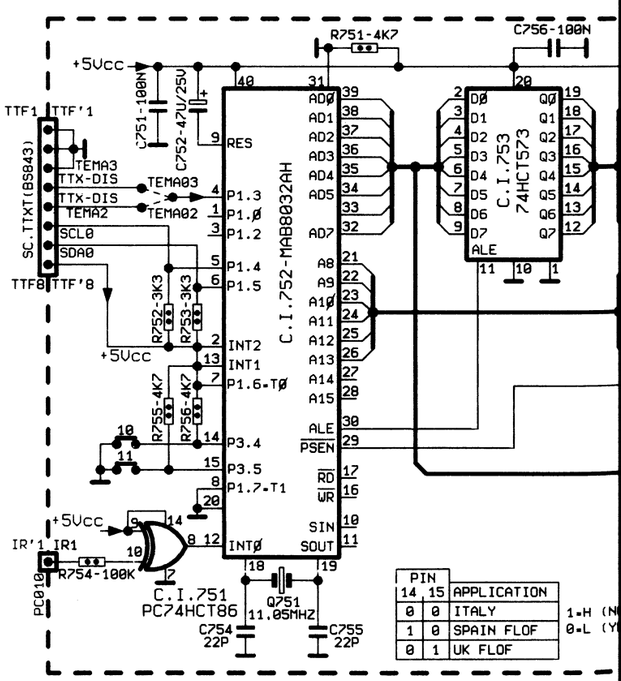


FLOF DECODER

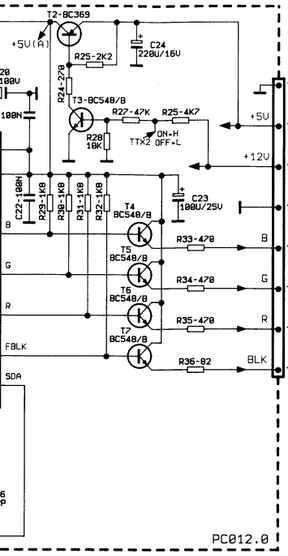


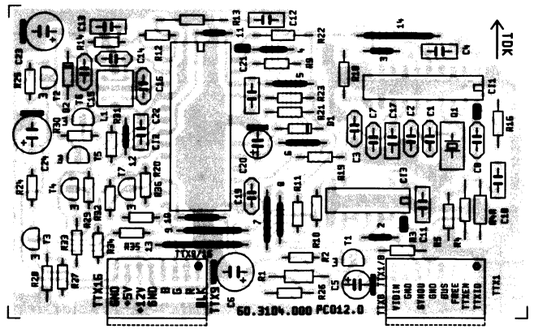


BS 843

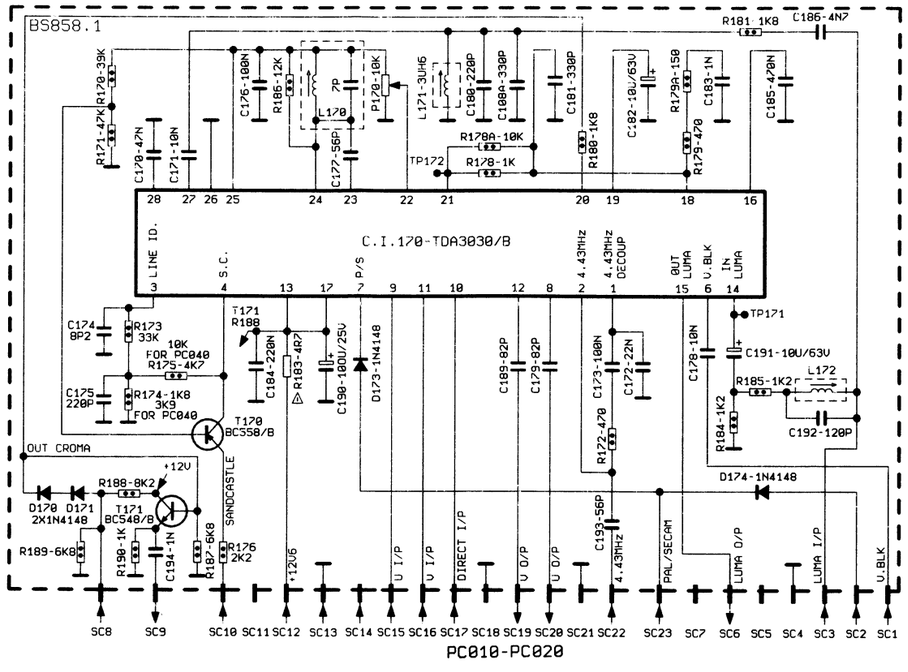


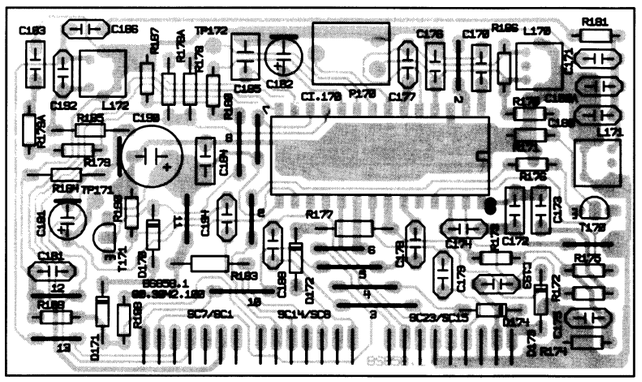
TRANSCODER PAL-SECAM





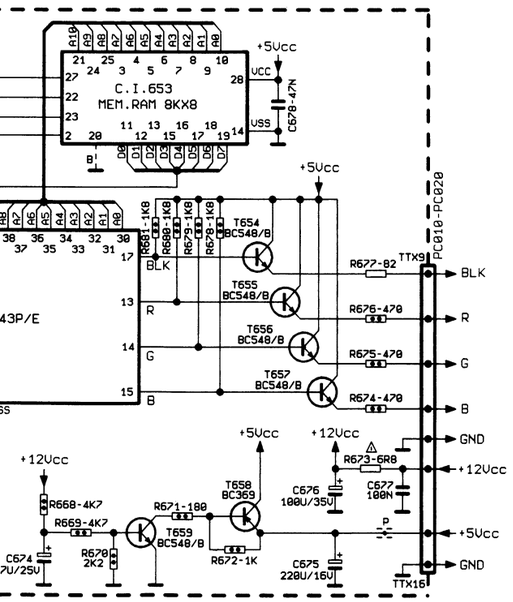
PC 012

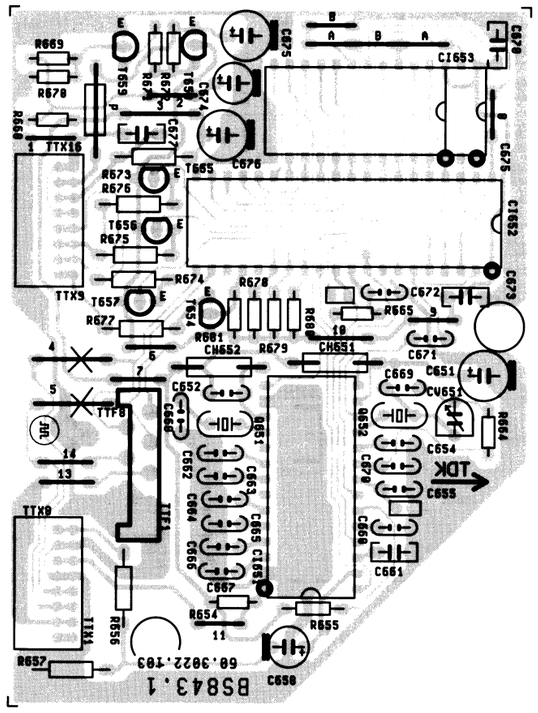




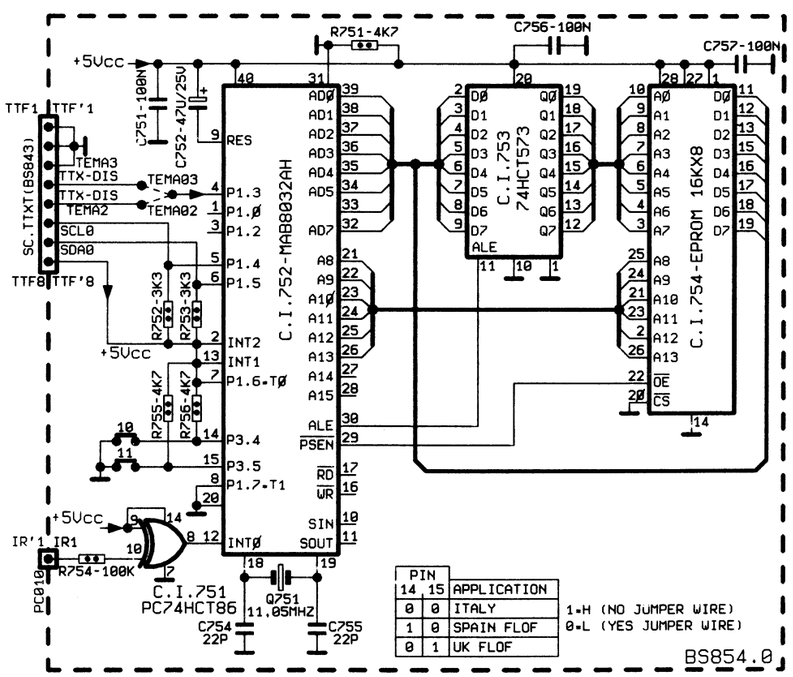
BS 858 - TRANSCODER PAL-SECAM

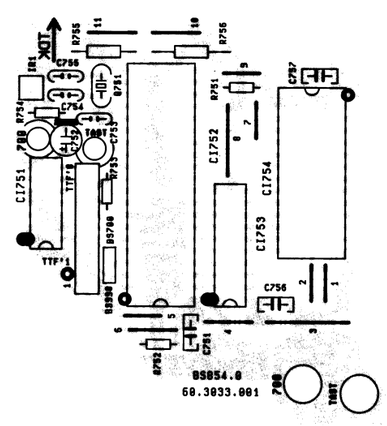
FLOF DECODER





BS 843





BS 854